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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,468	03/23/2007	Jan Hall	NOBELB.245NP	4924

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EXAMINER	
MAI, HAO D	

ART UNIT	PAPER NUMBER
3732	

NOTIFICATION DATE	DELIVERY MODE
01/31/2012	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/582,468	HALL, JAN	
	Examiner	Art Unit	
	HAO D. MAI	3732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/27/2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1,3-10,14-16 and 18-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1, 3-10, 14-16, 18-20* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/20/2011; 12/27/2011*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. he following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1, 3-7, 9-10, 14-16, and 18-20, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sachdeva et al. (5,697,779) in view of Blanquaert (4,261,063).**

Regarding claims 1 and 19, Sachdeva et al. disclose a dental implant 10 sized and configured to fit at least partially in a hole 30 formed in jaw bone 28 and through soft tissue belong to the jaw bone (Fig. 1). The dental implant has an upper portion 13 and a lower portion 10 with an annular rings 24 or thread 452 as shown in Figure 1 and 5, respectively. Sachdeva et al. disclose the implant 10 being made of titanium dioxide (column 3 line 56) but fails to disclose one or more titanium dioxide layers applied on at least one outer surface of the threaded lower portion, wherein between about 70-100% of each layer comprise crystalline titanium dioxide in the anatase phase.

Blanquaert discloses a bone prosthetic titanium pin 1 (Figs. 1-2) comprising a lower scale- and lattice-covered portion, which further comprise at least one layer of surface coating of anatase-phase titanium dioxide thereon (column 2 lines 44-53). It is inherently that 70%-100%, or a narrower range thereof, e.g. a narrower range towards 100% or even 100%, of the surface coating layer is in anatase-phase titanium dioxide according to Blanquaert's teaching of "a coating of titanium oxide obtained by anodic oxidation at 20 -200 volts, until a surface layer of

anatase of 3000-35000 Angstrom is formed" (column 2 lines 44-59). Note that Blanquaert's range of 20-200 volts for the anodic oxidation overlaps with Applicant's disclosed range of 100-270 volts (Specification, page 3 lines 18-22). Also note that Blanquaert's surface layer of anatase being 3000 to 3500 angstroms, which is converted to be 0.30 - 0.35 μm, is within/narrower than Applicant's range of thickness of 0.05 - 10 μm (Specification, page 2 lines 29-31). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sachdeva et al. by forming an anatase-phase titanium dioxide coating thereon the implant's lower threaded portion in order to protect the implant against long-term oxidation of the titanium as explicitly taught by Blanquaert (column 1 lines 51-53).

As to claims 3 and 20, Blanquaert discloses the surface layer of anatase being 3000 to 3500 angstroms (column 2 lines 52-53), which is converted to be 0.30 - 0.35 μm. Such range is within the claimed range of 0.05 - 10 μm. **As to claims 4-5, 10, and 14-15**, Blanquaert discloses a majority of the outer surfaces of the dental component are provided with crystalline titanium dioxide in the anatase phase. **As to claims 6 and 9**, Sachdeva's implant 10 comprises a threadless outer surface 13 capable of being placed against soft tissue. **As to claims 7, 16, and 18,** Sachdeva et al. discloses coating a dental implant with bone morphogenetic protein (BMP), a bone stimulation substance, for osteoinductive purposes (column 7 lines 16-36).

Response to Arguments

3. Applicant's arguments filed 12/27/2011have been fully considered but they are not persuasive. Applicant argued that Blanquaert does not inherently disclose a layer of 70-100% anatase. The examiner maintains that Blanquaert discloses "a coating of titanium oxide obtained by anodic oxidation at 20 -200 volts, until a surface layer of anatase of 3000-35000

Angstrom is formed" (column 2 lines 44-59); therefore such coating of titanium oxide is inherently at least 70-100%, or a narrower range thereof, e.g. a narrower range towards 100% or even 100%, in anatase phase titanium dioxide as claimed. Note that Blanquaert's range of 20-200 volts for the anodic oxidation overlaps with Applicant's disclosed range of 100-270 volts (Specification, page 3 lines 18-22); and Blanquaert's anatase layer has a thickness in the range of 0.3 - 0.35 μm, which is within or narrower than the Applicant's claimed thickness' range of 0.05 – 10 μm.

Applicant further argued that Blanquaert does not disclose a layer of 70-100% anatase because it is difficult to obtain layer of 70-100% anatase, that even small disturbances will cause anatase to transform irreversible into the rutile phase (Remarks: page 4 last paragraph); that the temperature must be precisely controlled or the coating will move to the rutile phase (Remarks: page 5 last paragraph). Such arguments are not persuasive because Blanquaert discloses such anatase coating being advantageous over a rutile coating (column 2 lines 57-59), implicitly teaching away from converting the anatase to rutile phase as argued by Applicant.

In response to applicant's argument that it would not be obvious to apply the coating of Blanquaert to the dental implant of Sachdeva because temperatures that exceed 400˚C from the anodic oxidation process can adversely affect the strength of a titanium substrate (Remarks; page 5 second paragraph), the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the examiner maintains that it would have been obvious to one of ordinary skill in the art to apply Blanquaert's teaching of providing an anatase coating to a surgical titanium pin to be fixed/implanted in bones to Sachdeva's dental titanium implants in order to protect the dental

titanium implants against long-term oxidation of the titanium as explicitly taught by Blanquaert (column 1 lines 51-53). Applicant's arguments that the high temperature created through the anodic oxidation process would adversely affect the strength of a titanium substrate, particularly a small component like a dental implant, are directed toward the details of the process of manufacturing the invention, which are irrelevant to the conception of the invention itself. In another word, there is no evidence that applying Blanquaert's anatase coating to Sachdeva's dental titanium implant would not destroy or render Sachdeva's implant unusable.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner HAO D. MAI whose telephone number is (571)270-3002. The examiner can normally be reached on Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris Rodriguez can be reached on (571) 272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. If there are any inquiries that are not being addressed by first

contacting the Examiner or the Supervisor, you may send an email inquiry to TC3700_Workgroup_D_Inquiries@uspto.gov.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hao D Mai/
Examiner, Art Unit 3732

/Cris L. Rodriguez/
Supervisory Patent Examiner, Art Unit 3732